

Importance of Preserving Night Skies

Robyn Henderek
Dark-Sky Coordinator
Zion National Park





Photos by Avery Sloss

2021 Zion NP certified as an International Dark Sky Park



Adrienne Fitzgerald began this important work in 2016

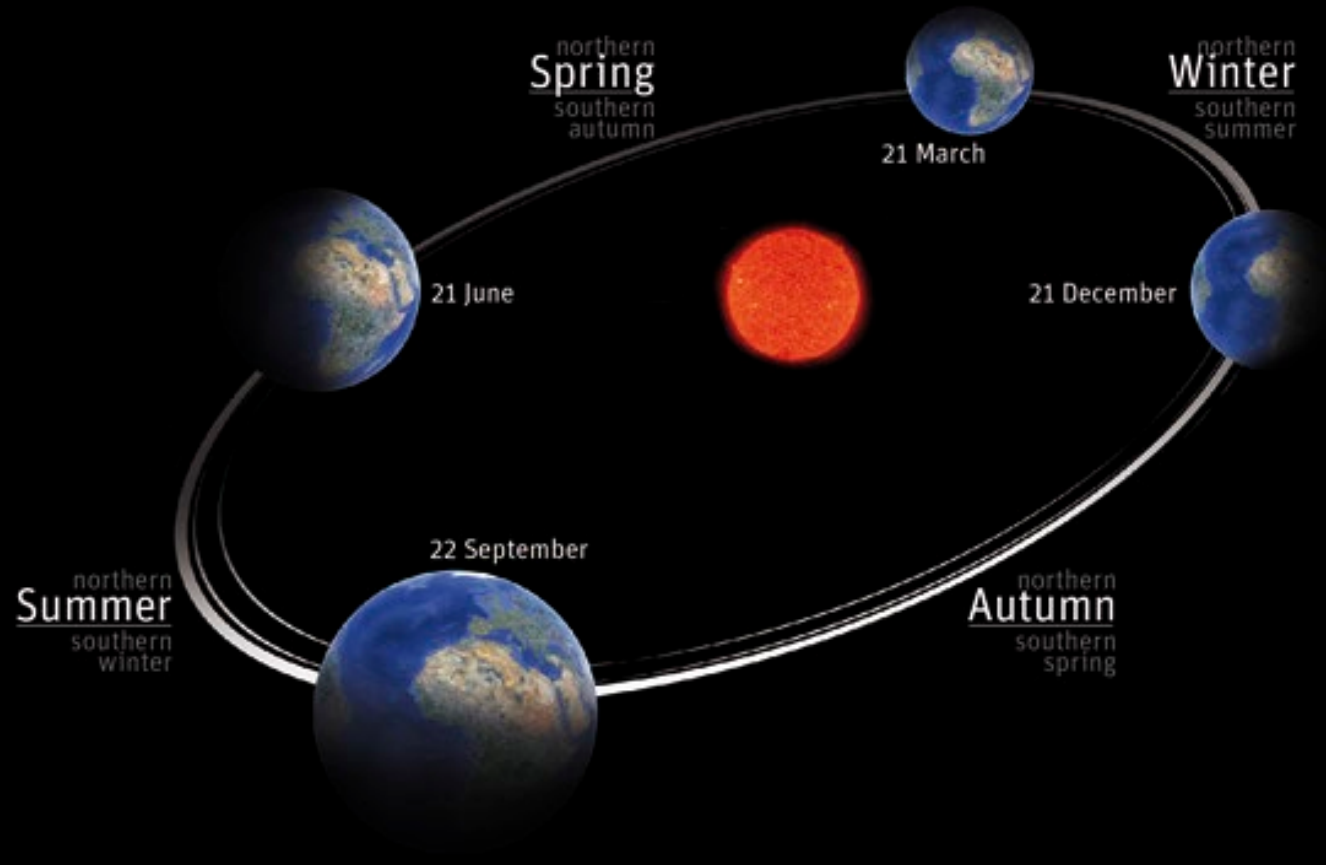
The background image shows a dramatic landscape at twilight. A large, reddish-brown rock formation, possibly a butte or mesa, dominates the right side of the frame. In the center, a bright sun is partially obscured by the mountain peaks, creating a lens flare effect. The sky is a deep, dark blue, and the mountain slopes are covered in sparse vegetation. The overall mood is serene and majestic.

Springdale began its journey to becoming an International Dark Sky Community in 2009 through the adoption of a lighting ordinance

Light pollution is not just a problem in large cities...



Natural Rhythms of Light and Dark





Natural Rhythms of Light at Night









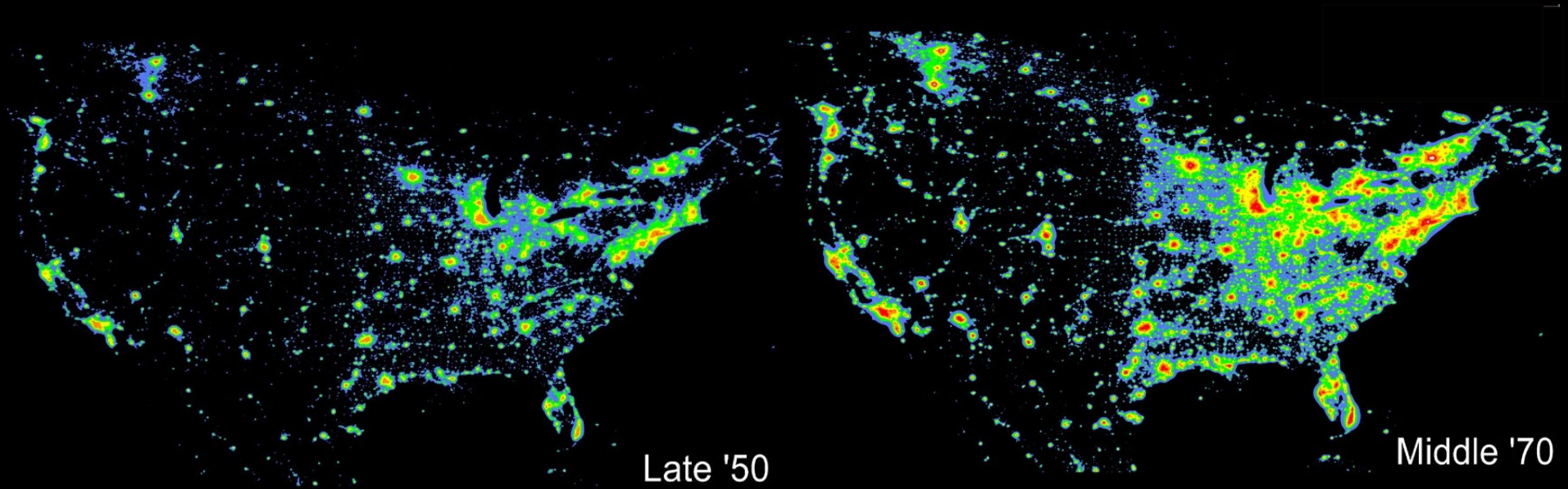
Light pollution is bad for your health

- Disruption of our circadian rhythm leads to sleep disorders
- Risk factor for cancer

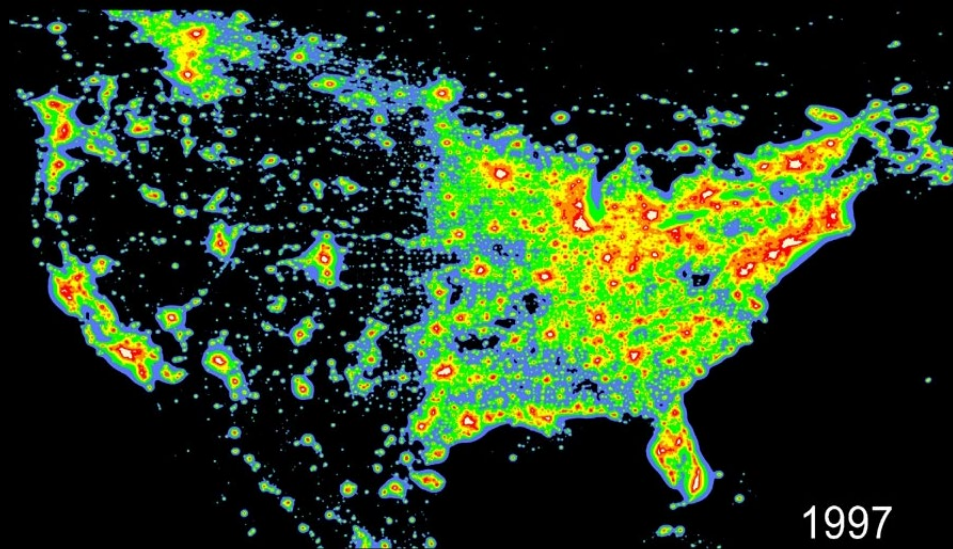
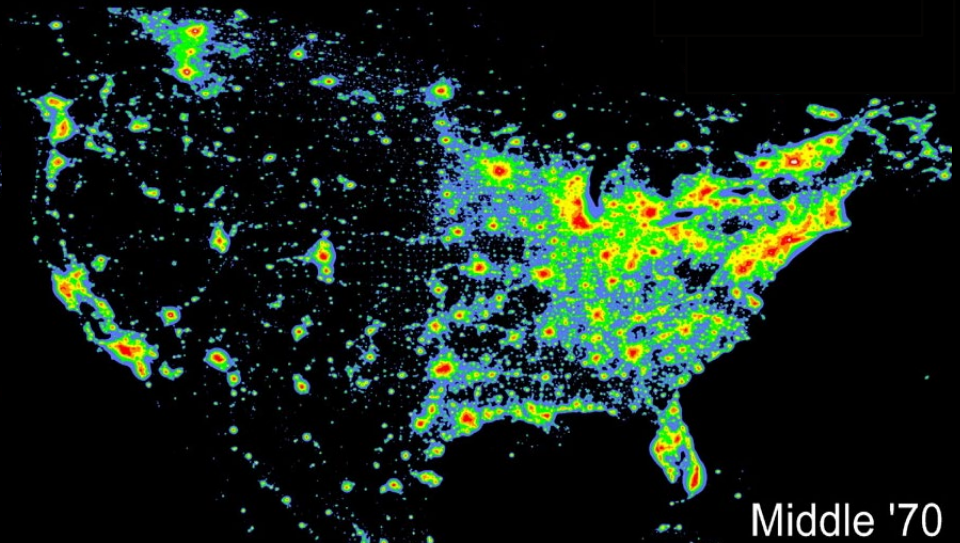
Artificial Night Sky Brightness due to Light Pollution.
Cinzano, Falchi, and Elvidge 2001



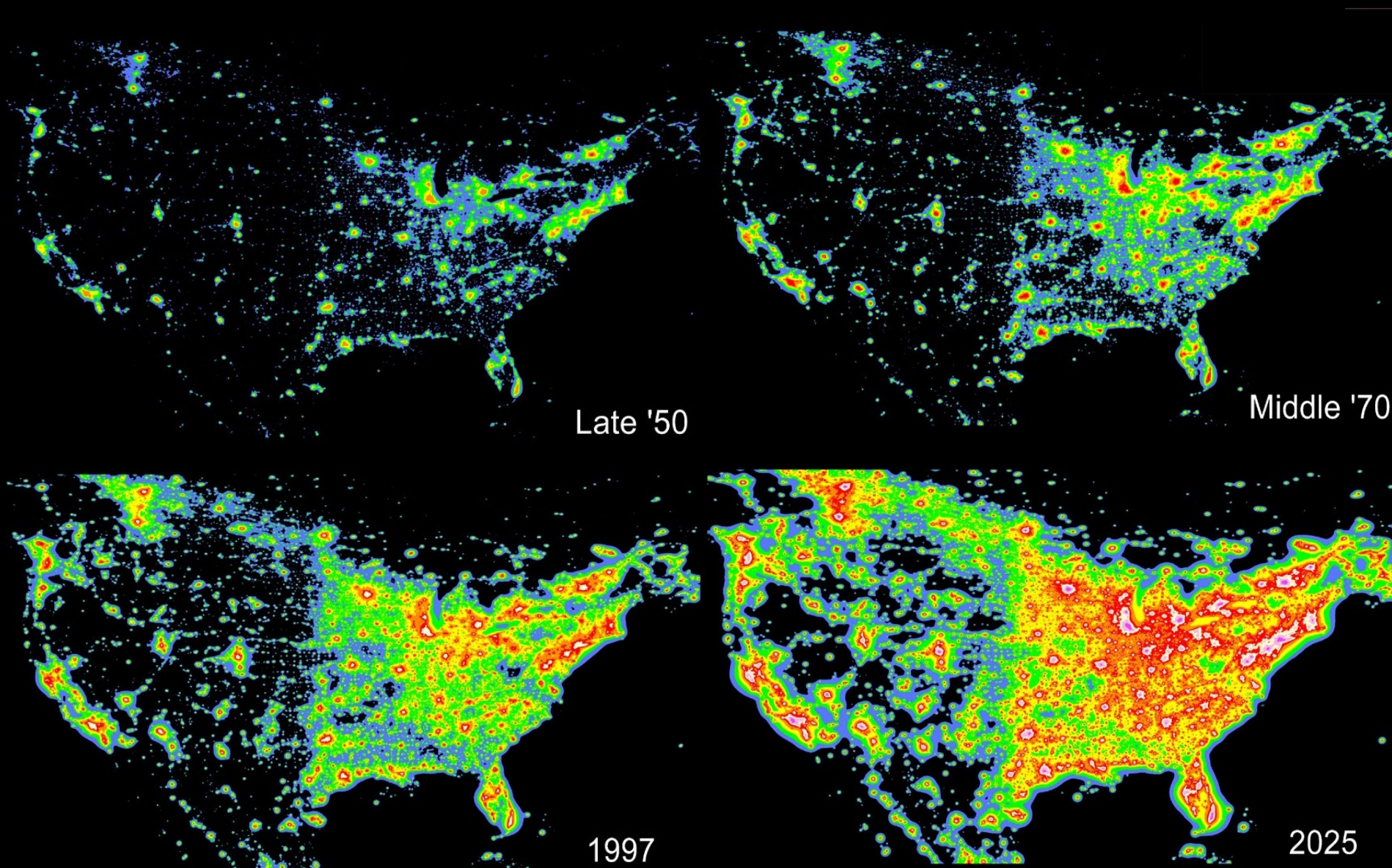
Artificial Night Sky Brightness due to Light Pollution.
Cinzano, Falchi, and Elvidge 2001

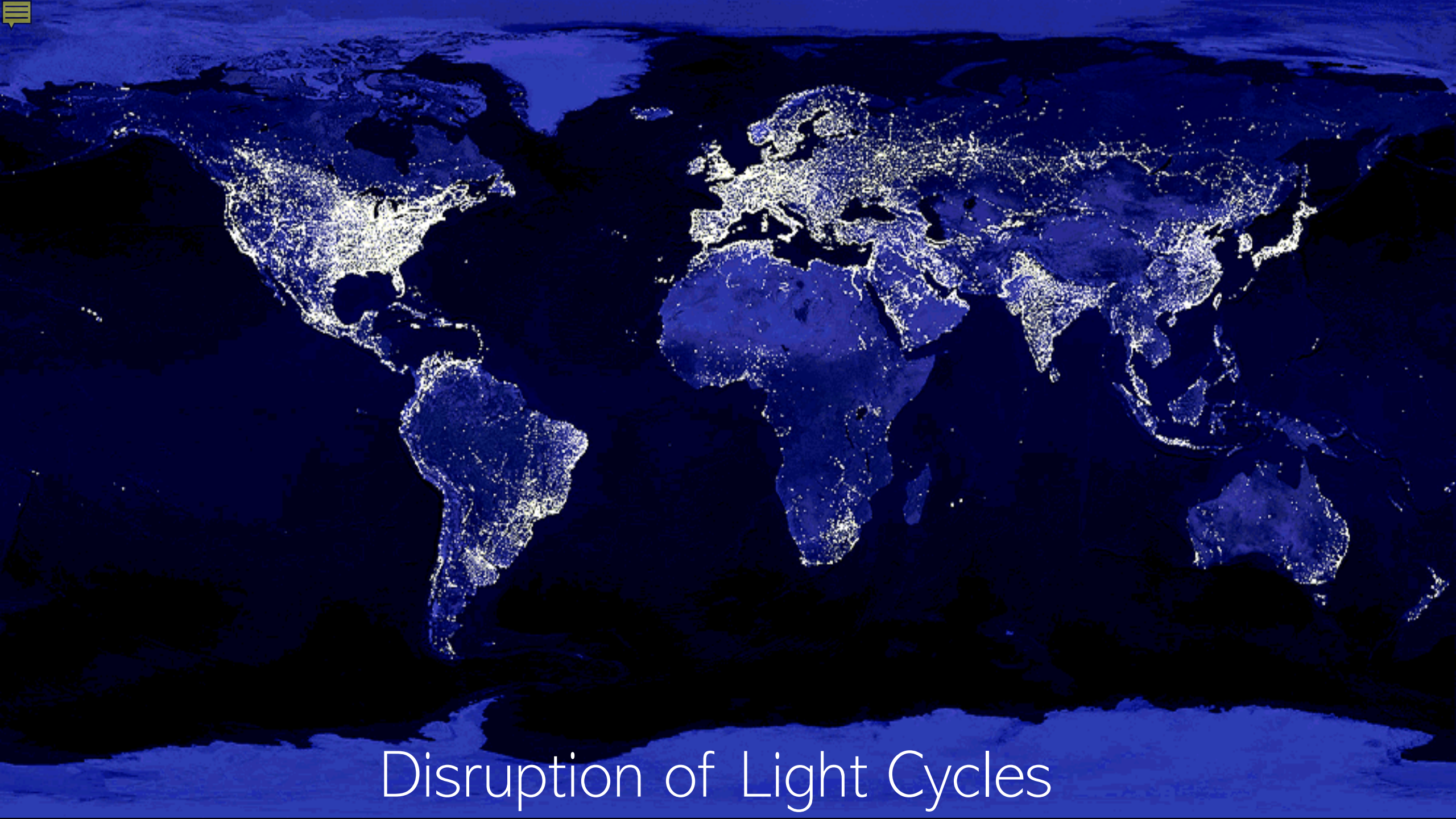


Artificial Night Sky Brightness due to Light Pollution.
Cinzano, Falchi, and Elvidge 2001



Artificial Night Sky Brightness due to Light Pollution.
Cinzano, Falchi, and Elvidge 2001

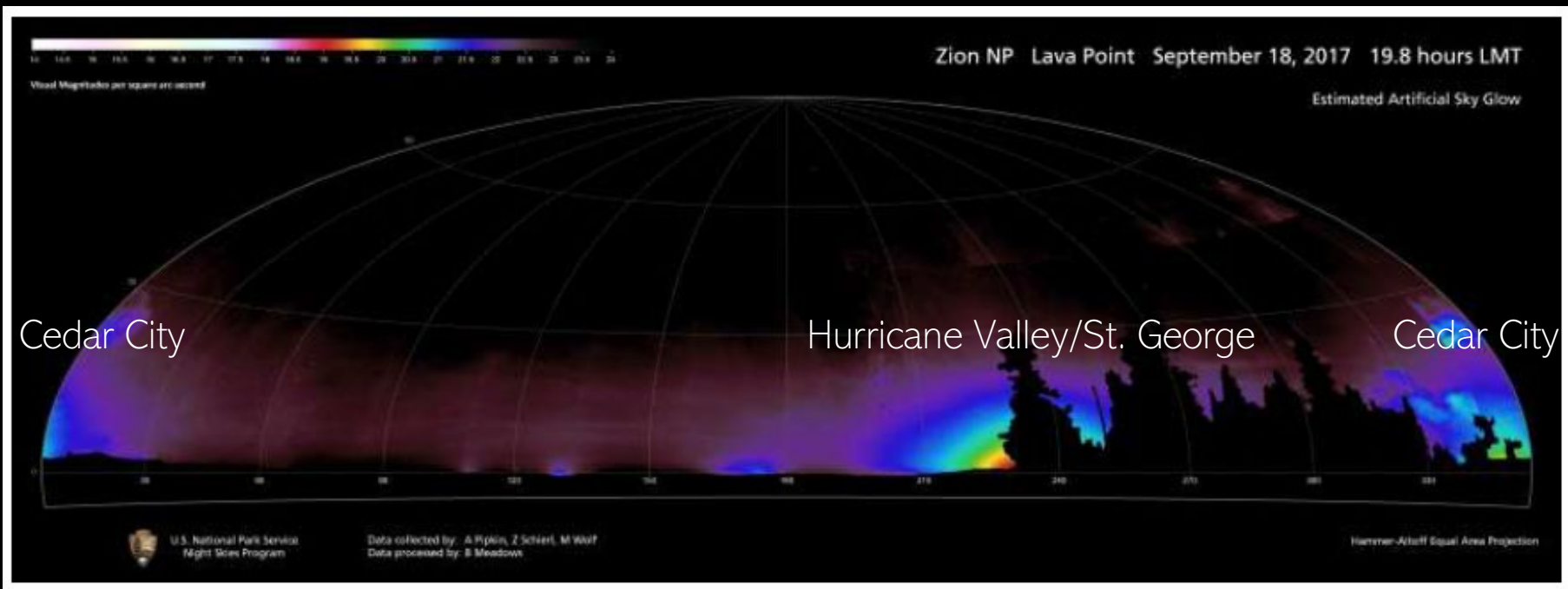
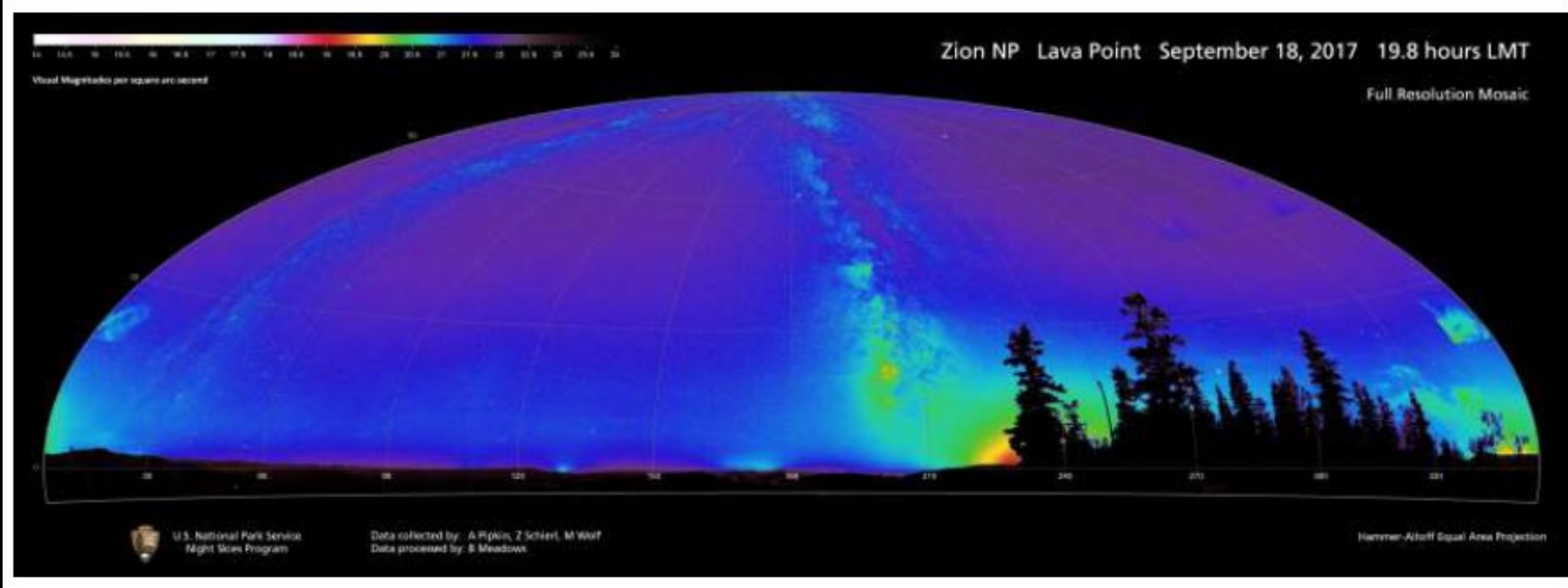


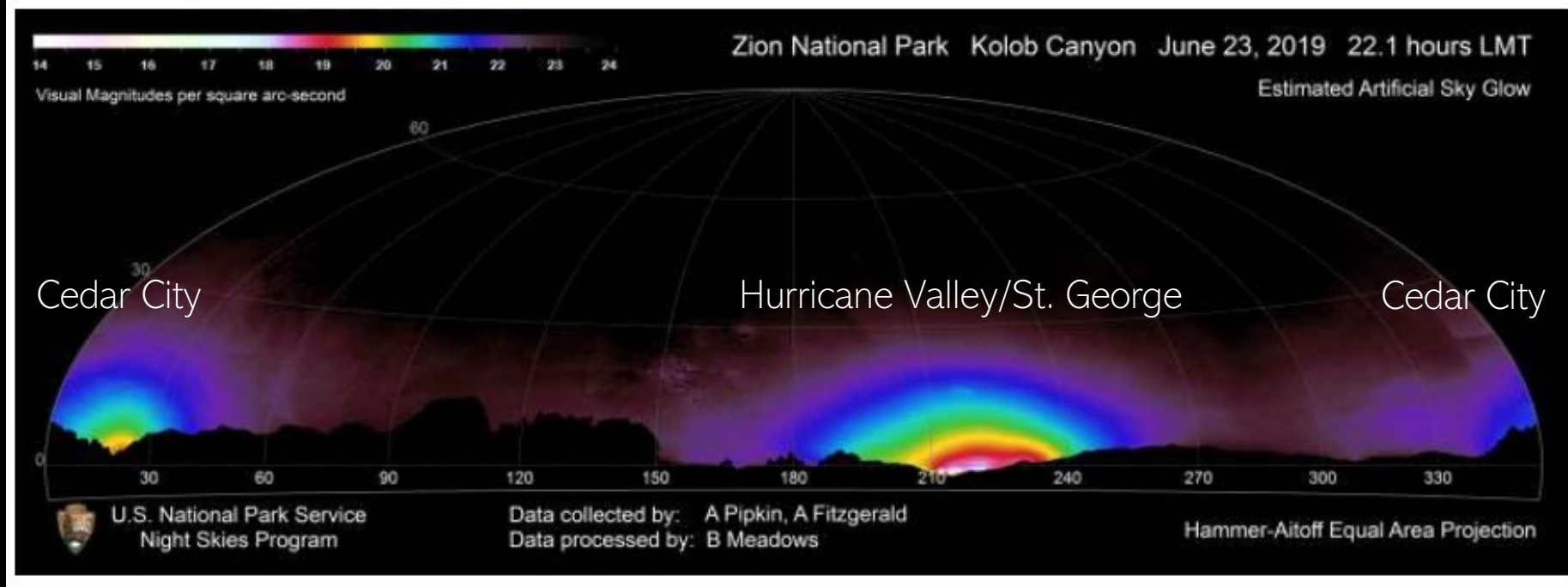
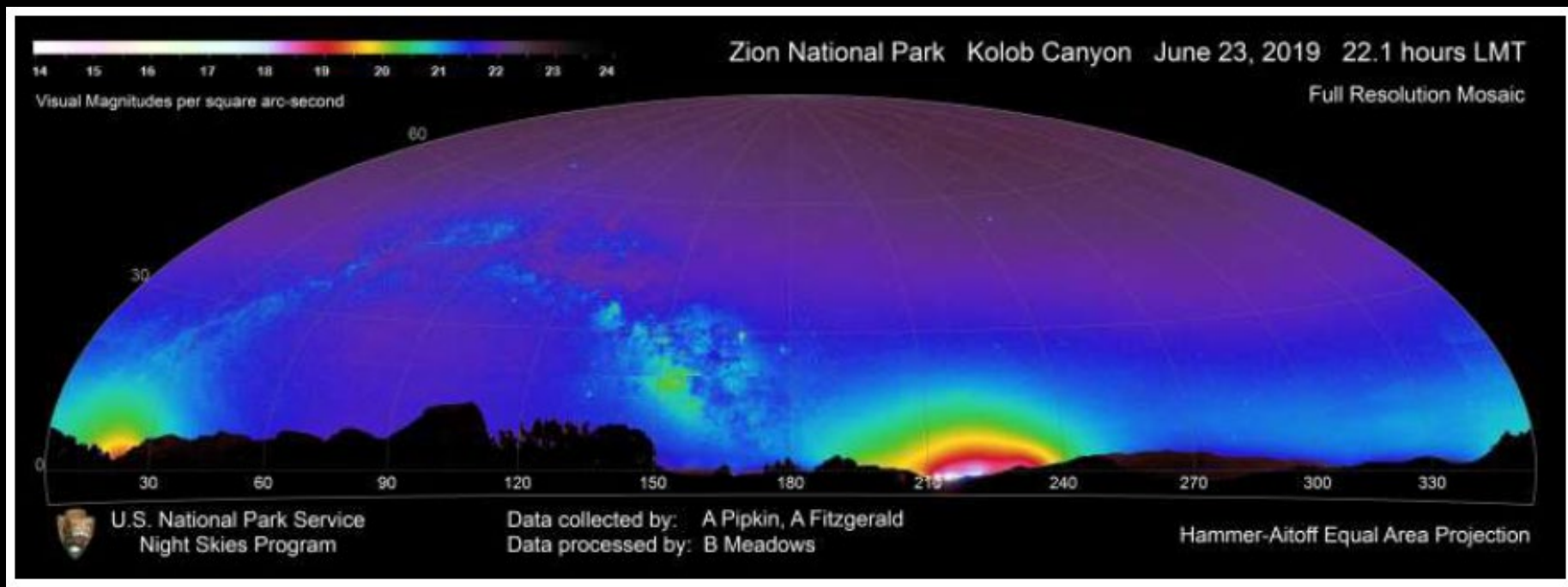


Disruption of Light Cycles

Measuring the impact to night skies



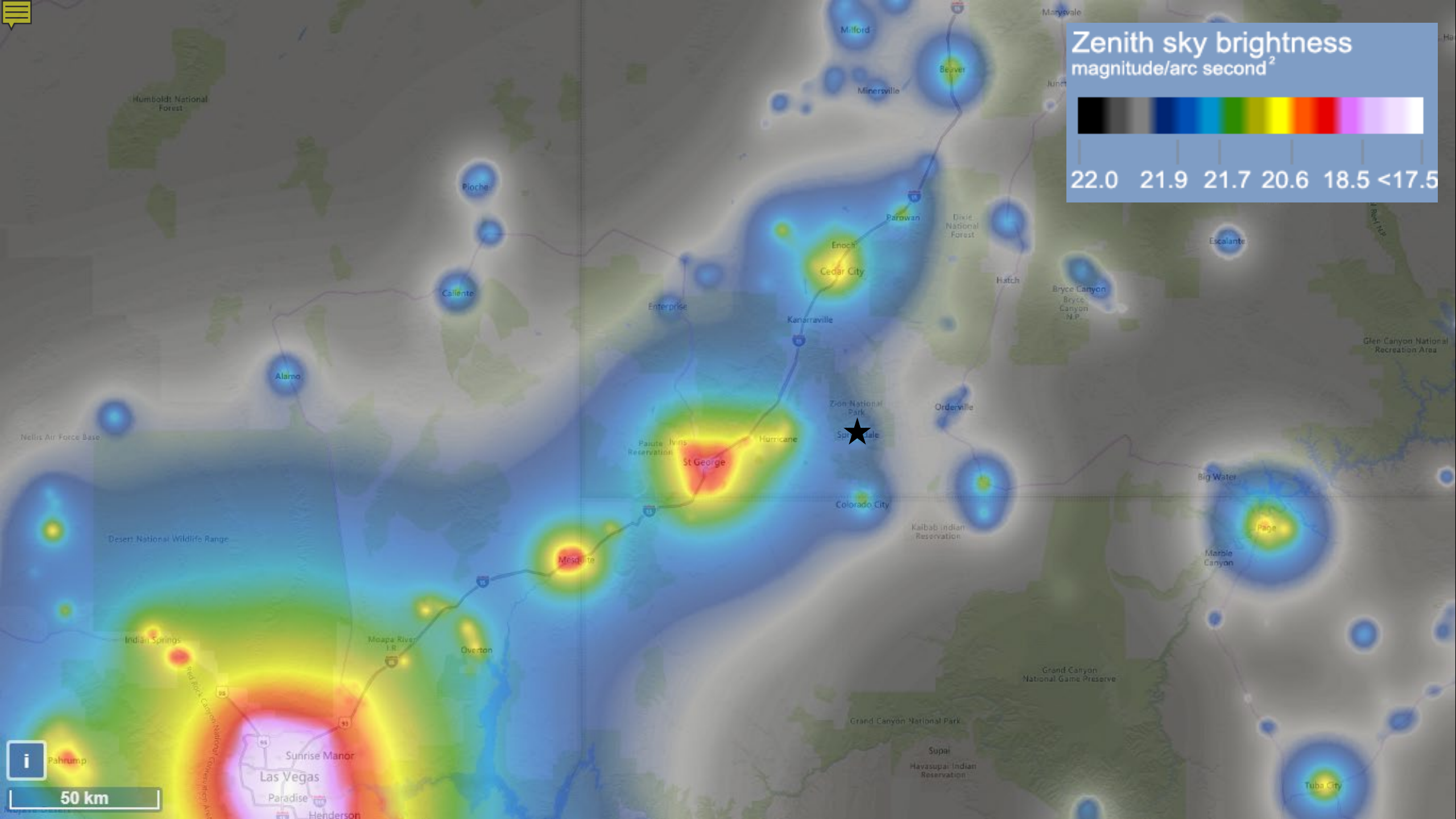




Zenith sky brightness magnitude/arc second²



22.0 21.9 21.7 20.6 18.5 <17.5



Pahrump

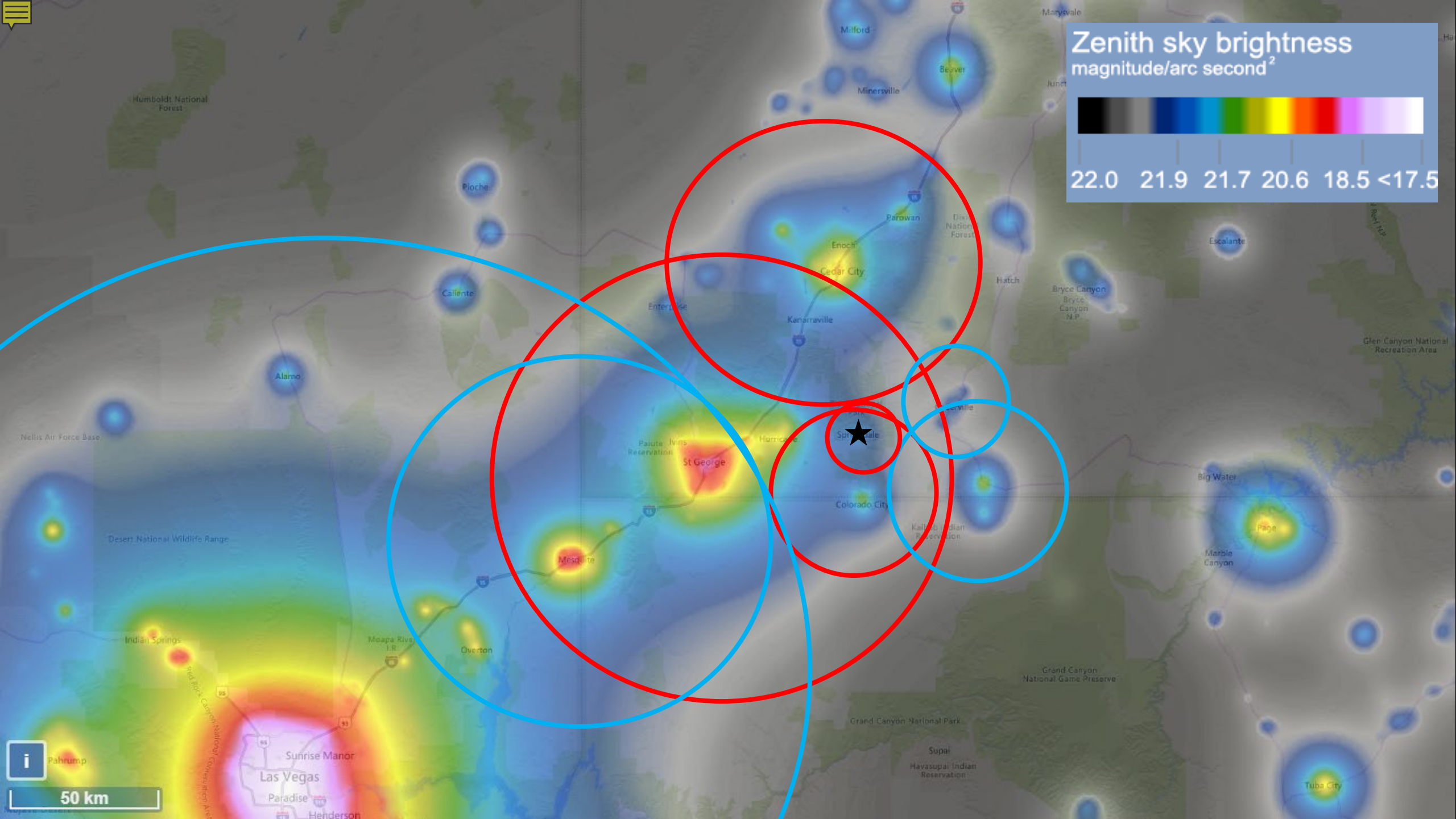
50 km



Zenith sky brightness magnitude/arc second²



22.0 21.9 21.7 20.6 18.5 <17.5



Pahrump

50 km

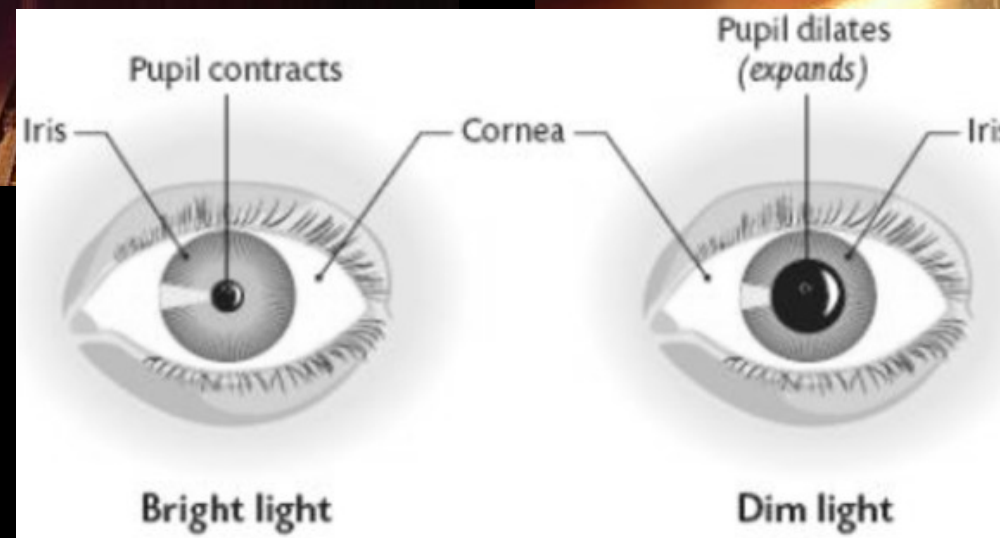
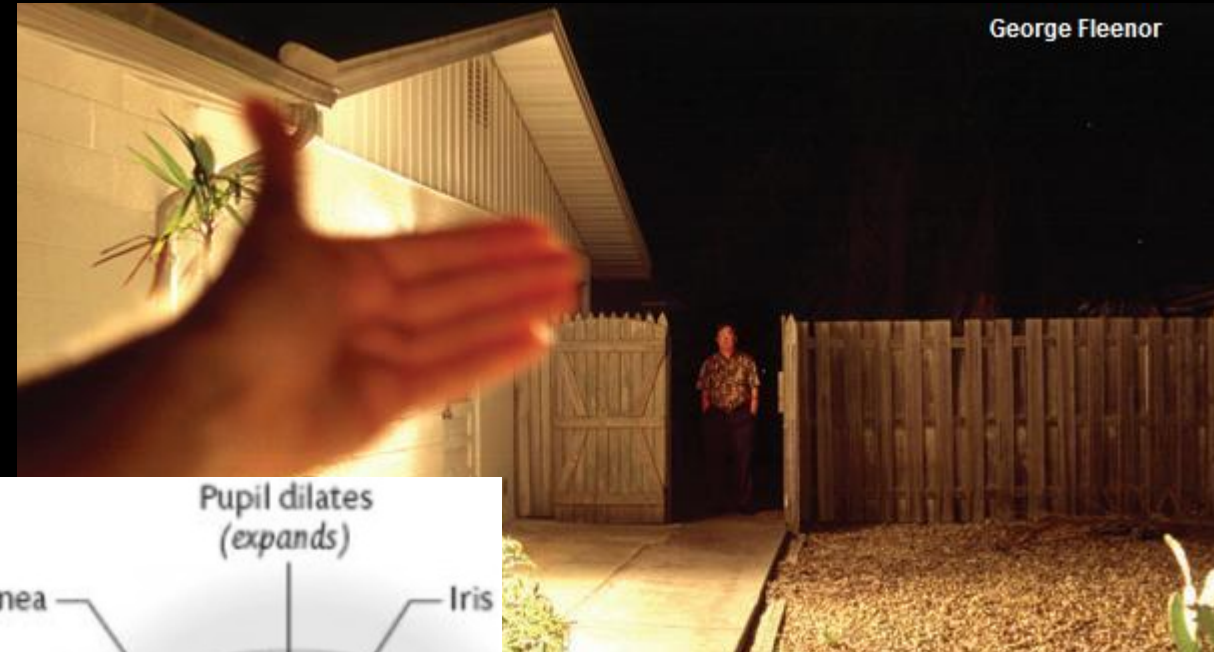
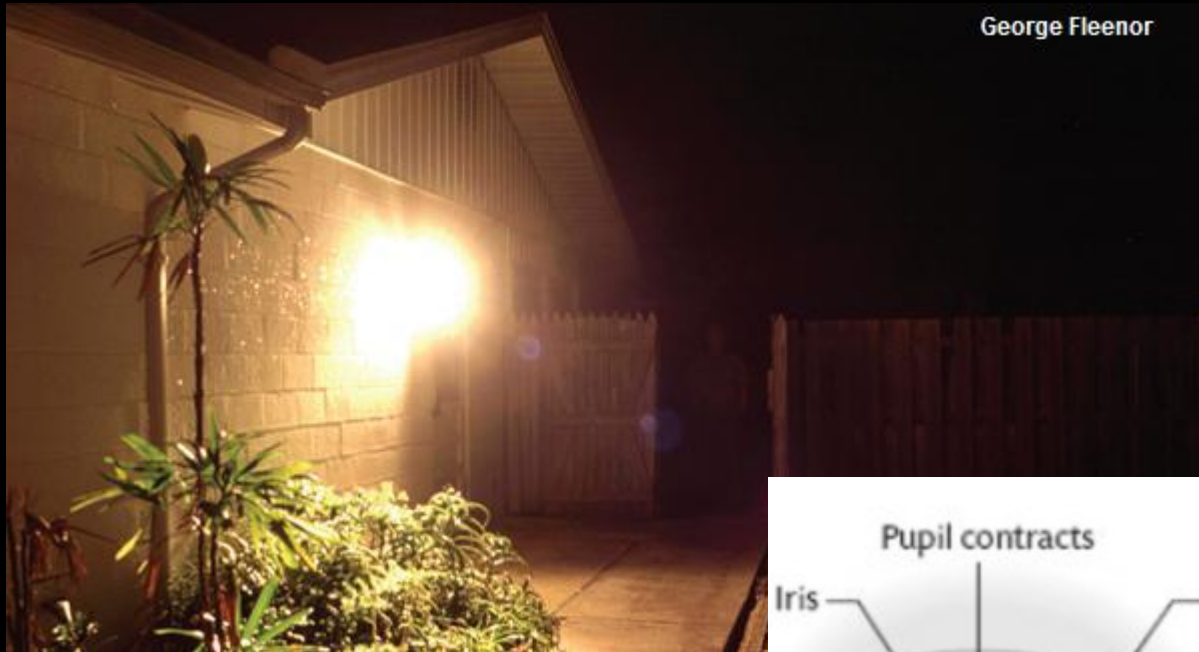
Poor lighting is unsafe!



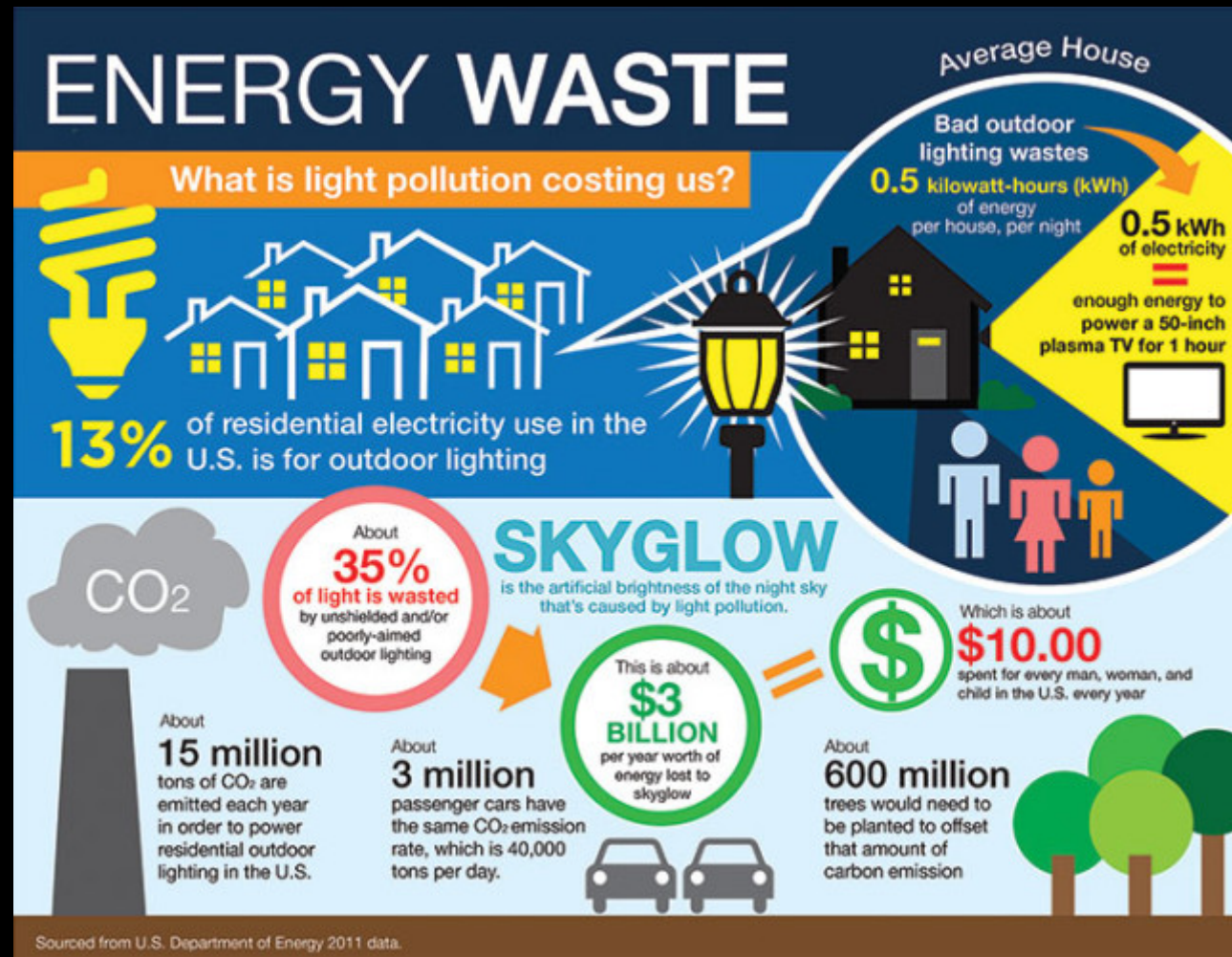
Poor lighting is unsafe!



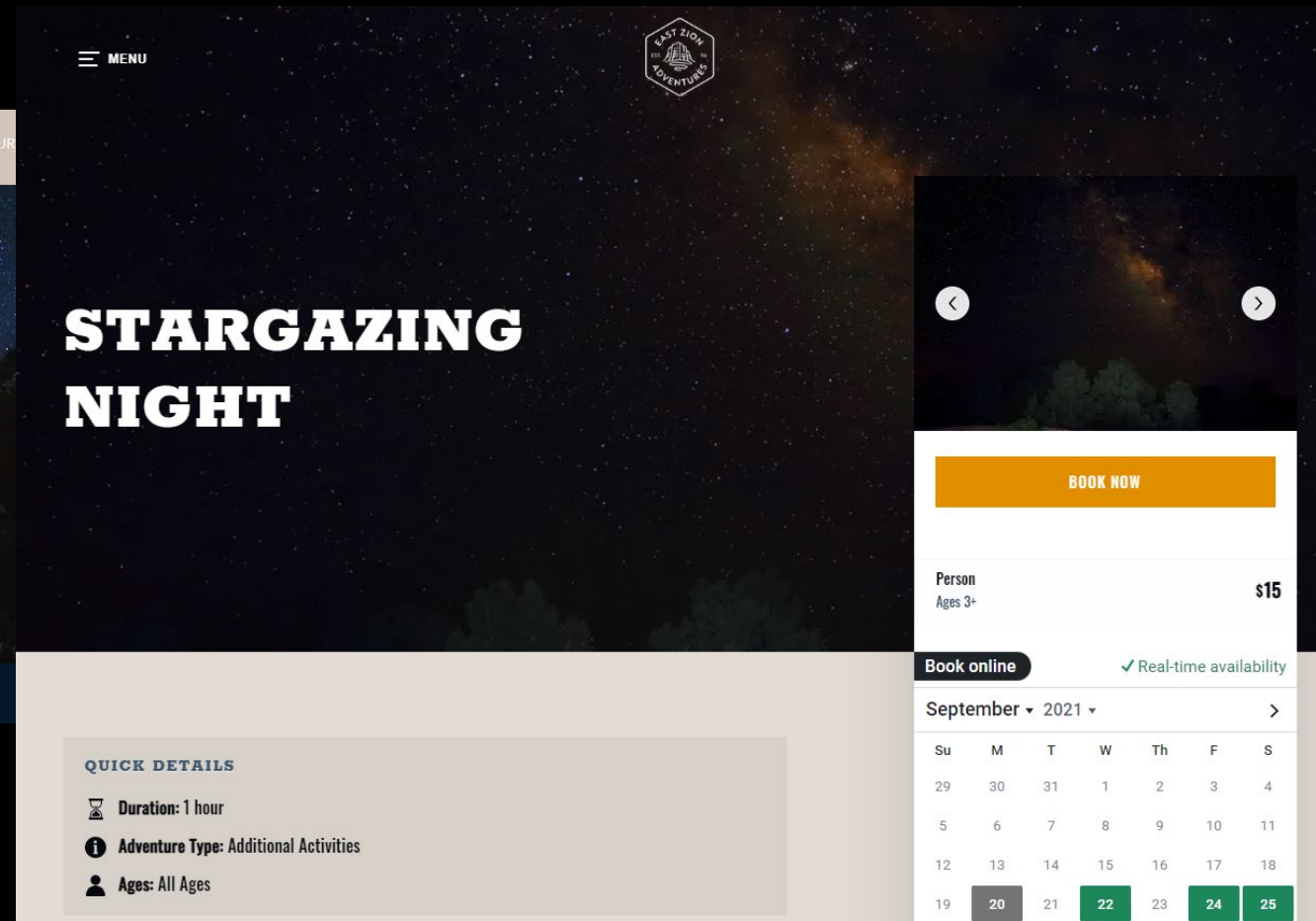
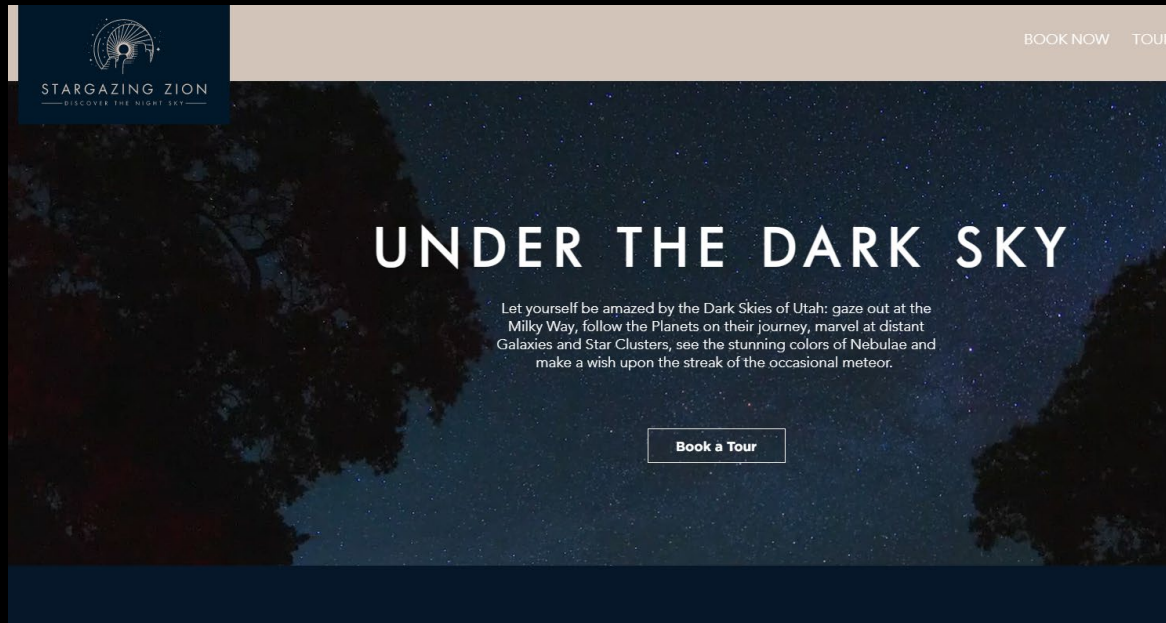
Poor lighting is unsafe!




Smarter outdoor lighting means cost savings!



Becoming an International Dark Sky Community will bring in more **tourism revenue** to the town!





Why manage
artificial outdoor
lighting?

- Better for the **environment**
- Better for **your health**
- **Safer** for the community
- Saves **money**
- Generates **revenue**

A nighttime photograph of a desert canyon. A winding road is illuminated by streetlights, creating a bright path through the dark landscape. The sky is dark with visible stars. The text "How do we correct light pollution?" is overlaid in white.

How do we correct light pollution?

Shield lights



Shield lights



Use amber-colored lights



Use amber-colored lights



Before amber sleeve



After amber sleeve

Eliminate unnecessary lighting



Establish lighting curfews





Lighting Management Plan

Zion National Park



Approved by:

JEFFREY
BRADYBAUGH

Digitally signed by
JEFFREY BRADYBAUGH
Date: 2021.01.29 07:58:16
+0700

Jeff Bradybaugh, Superintendent

January 2021



Creatively shielding
light on the flammable
material building

Historic light fixtures at the Maintenance
yard have shallow shields; replacing large
incandescent bulbs with short LED
lamps to maintain historic integrity

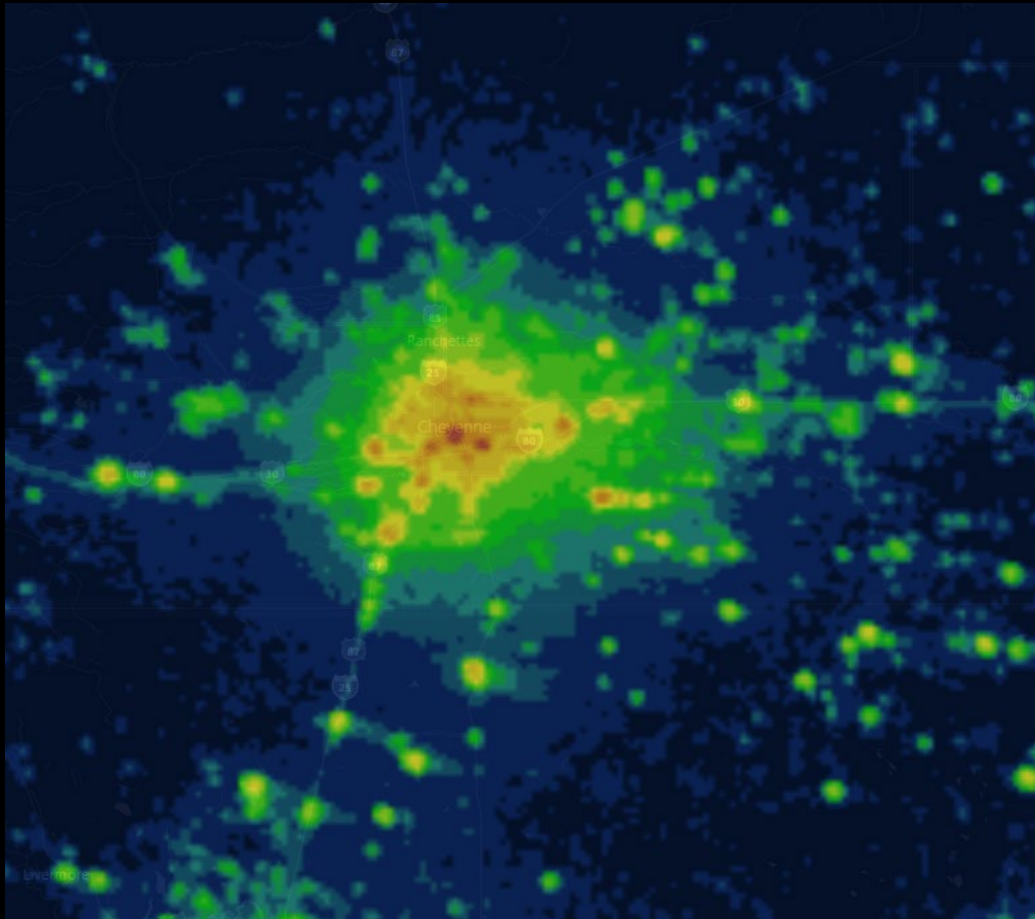


Lighting ordinances work!

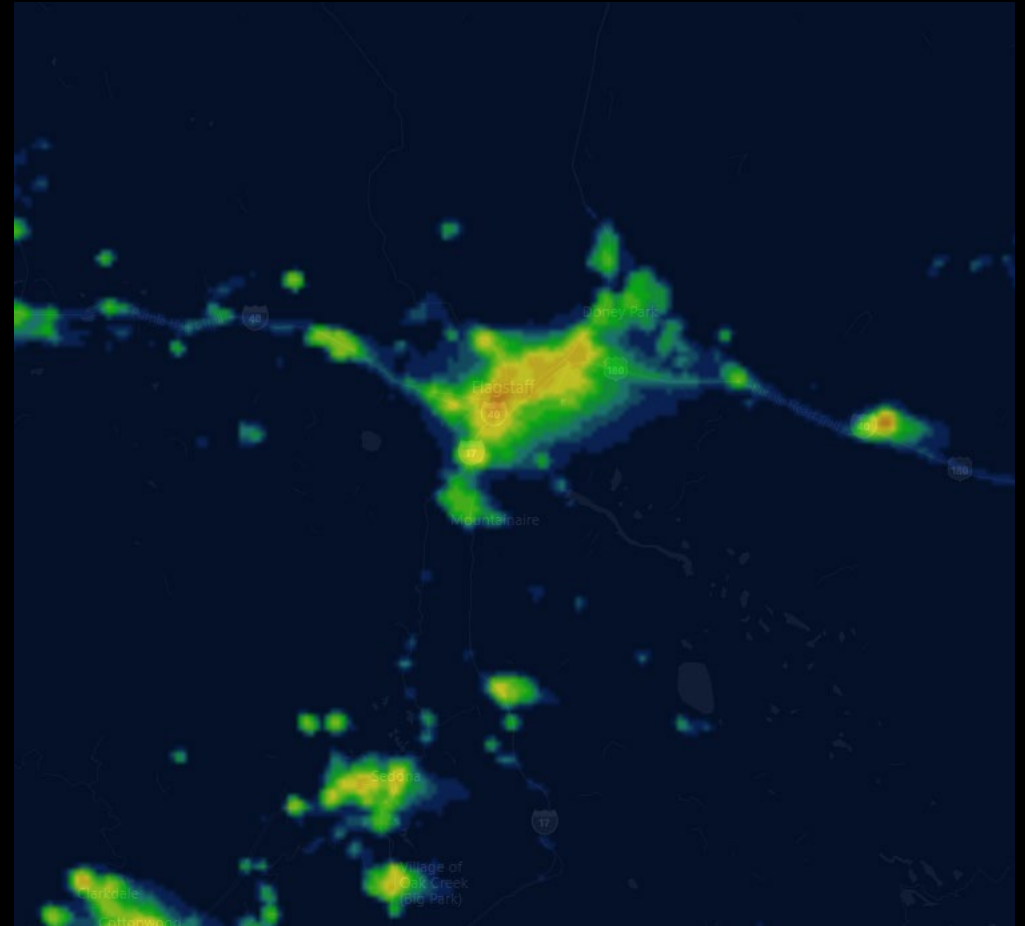


Chisos Basin development in Big Bend NP as seen from Emory Peak, 3.5 miles distant, before (2003) and after (2011) lighting retrofit.

Lighting ordinances work!



Cheyenne, WY – population 63,607



Flagstaff, AZ – population 72,402



Working across the landscape is the only meaningful way to protect the night sky

Engaging with communities, non-profits, state lands, city lands, federal public lands, tribes, universities and astronomical organizations





Robyn Henderek

robyn_henderek@nps.gov